

## A revision of the genus *Gibberifera* Obraztsov (Lepidoptera: Tortricidae), with descriptions of four new species

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**Abstract** The genus *Gibberifera* Obraztsov, 1946 is revised. The monophyly of the genus is supported by two autapomorphies. Ten species of the world are treated, including four new ones: *angkhangensis*, *nigrovena*, *hepaticana* and *alba*. *G. glaciata* (Meyrick, 1907) is recognized as an independent species, and newly recorded from Pakistan, Nepal, Thailand, Taiwan and China. *G. obscura* Diakonoff, 1964 is new to the fauna of Pakistan. Adults, wing venation and genitalia are illustrated, and key to species based on male genitalia is given.

**Key words** Tortricidae, Eucosmini, *Gibberifera* Obraztsov, autapomorphies, taxonomy, new species.

*Gibberifera* Obraztsov, 1946 is a genus of the tribe Eucosmini distributed in the Palaearctic and Oriental regions, and its members are usually uniform in the maculations and coloration of forewings. Until now, five species have been recorded from the world. We re-examined the specimens of *Gibberifera* from Europe and Asia, and have recognized ten species including four new species. In this paper the redescription of the genus is given, and the autapomorphies of the genus are proposed. Four new species are described, with illustrations of adults and genitalia, and the remaining six species are summarized.

The following abbreviations are used to indicate the locations of the specimens: AK—Collection of A. Kawabe, Chiba, Japan; BMNH—The Natural History Museum, London, UK; FK—Collection of F. Komai, Osaka University of Arts, Osaka, Japan; IZAS—Institute of Zoology, Academia Sinica, Beijing, China; UOP—Entomological Laboratory, University of Osaka Prefecture, Sakai, Japan; USNM—National Museum of Natural History, Smithsonian Institution, Washington, D. C., USA; YN—Collection of Y. Nasu, Wakayama, Japan; ZMUC—Zoological Museum, University of Copenhagen, Copenhagen, Denmark.

### Genus *Gibberifera* Obraztsov

*Gibberifera* Obraztsov, 1946: 26, 35, 134. Type species: *Penthina simplana* Fischer von Röslerstamm, 1836, by original designation [as mentioned on p. 26, and not *Paedisca delitana* Fischer von Röslerstamm, 1839 = *Tortrix trochillana* Frölich, 1828 as mentioned on p. 35]; Swatschek, 1958: 155 (larva); Hanemann, 1961: 148; Bentinck & Diakonoff, 1968: 123; Razowski, 1977: 246; Kuznetsov, 1978: 478. *Gibbifera*: Razowski, 1987: 143; Razowski, 1989: 168. [Missp.]

Wing expanse 10-19 mm. Head rough above. Labial palpus short. Antenna simple. Thorax smooth. Forewing (Figs 2-8) elongate triangular, costal fold absent; ground color fuscous, ventral surface light grayish brown, in *nigrovena* blackish brown. Costa with several pairs of whitish strigulae (costal strigulae) from apex to beyond middle. A large whitish pandurate marking conspicuous, occupying apical 4/5 of wing, consisting of a wide median fascia and a large round ocelloid patch. Forewing (Fig. 1) with 12 veins, all

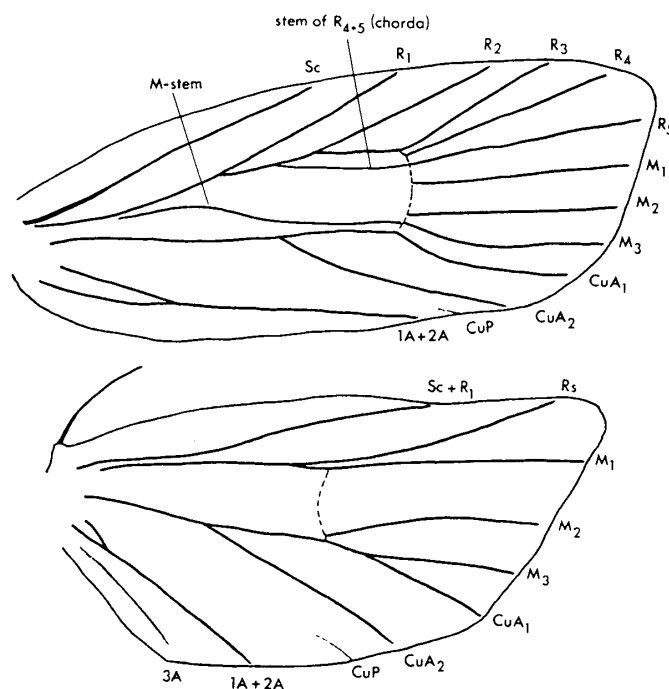


Fig. 1. Wing venation of *Gibberifera simplana* (Fischer von Röslerstamm), ♂, Japan.

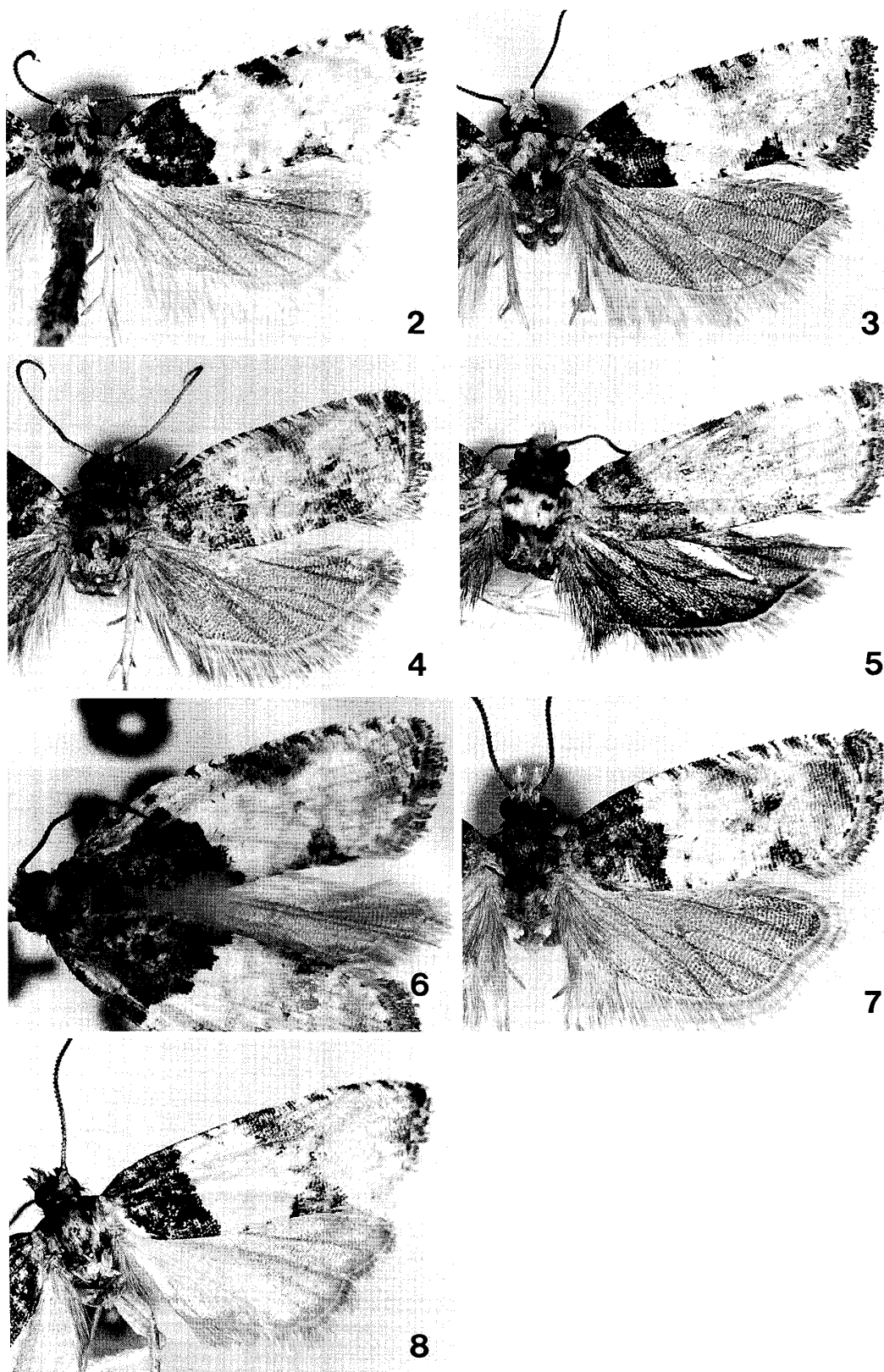
veins separated;  $R_3$  and  $R_4$  approximated towards base;  $R_4$  to costa;  $R_5$  to termen;  $CuA_1$  bent up;  $CuP$  rudimentary, sometimes absent; in discal cell, stem of  $R_{4+5}$  (chorda) and  $M$ -stem distinct, in *hepaticana* stem of  $R_{4+5}$  absent. Hindwing (Fig. 1) unicolorous, fuscous, in *nigrovena* semitransparent (Fig. 5), usually with 8 veins;  $R_s$  and  $M_1$  approximated towards base;  $M_3$  and  $CuA_1$  stalked;  $CuP$  rudimentary.

Male genitalia (Figs 9-15). Uncus stick-shaped, protruded ventrally, setose dorsally except apex, sometimes bifurcated apically, in *alba* absent. Socii triangular lobes, setose. Gnathos weakly sclerotized. Valva constricted (neck distinct); basal opening large; sacculus setose; neck nearly naked. Cucullus oval or oblong, weakly sclerotized, setose on the inner surface, without stout setae along the posterior edge, with a slender process bearing a stout short seta apically on the ventral base. Aedeagus short, cone-shaped; vesica with many deciduous cornuti and sometimes with several spine-like non-deciduous cornuti on the top (Figs 10, 11, 13, 14).

Female genitalia (Figs 16-18). Papillae anales flat or narrow. Sterigma developed, wide oblong plate without setae, spinulose on the surface, not fused with 7th sternite, which is broadly sclerotized and trapezoid. Ductus bursae with a sclerotized ring posteriorly; ductus seminalis originating from the anterior end of the ring. Corpus bursae globular; two horn-shaped signa situated laterally.

Larva. In *simplana*, the morphology of mature larva is known (Swatschek, 1958). Crochets biordinal. On mesothorax,  $SD_2$  dorso-cephalad of  $SD_1$ ,  $V_1$  on edge of coxa.  $SV$  group on abdominal segments 1 and 2, trisetose; on segments 8 and 9, bisetose.

Distribution. Palaearctic and Oriental regions. Type species, *simplana*, is Palaearctic (from England to Japan).



Figs 2-8. Adults. 2. *Gibberifera simplana* (Fischer von Röslerstamm), ♂, Japan. 3. *G. glaciata* (Meyrick), ♀, Thailand. 4. *G. angkhangensis* n. sp., ♂, Thailand, holotype. 5. *G. nigrovena* n. sp., ♂, Nepal, holotype. 6. *G. obscura* Diakonoff, ♂, Pakistan. 7. *G. hepaticana* n. sp., ♂, Japan, holotype. 8. *G. alba* n. sp., ♂, Nepal, holotype.

Biological note. Salicaceae are utilized as larval hosts by three species, *simplana*, *glaciata* and *obscura*. According to Bradley *et al.* (1979), *simplana* is univoltine in England, and the larvae feed on *Populus tremula* L., living in a spun leaf of a terminal shoot (usually the young tree) in August and September. Pupation takes place in the turned down edge of a leaf of the food plant, and the leaf falls to the ground in the autumn.

Remarks. The autapomorphies are the following two characters.

- 1) Forewing with a large whitish pandurate marking consisting of a wide median fascia and a large round ocelloid patch, occupying apical 4/5. A similar marking is not observed in any other genera within the tribe Eucosmini.
- 2) Cucullus with a slender process bearing a short stout seta apically on the ventral base. A similar seta on cucullus appears in two genera within the tribe Eucosmini: *Pelochrista* Lederer, 1859 and *Spilonota* Stephens, 1829. However, these are considered to be acquired independently in the different lineages.

Razowski (1989) pointed out two supposed autapomorphies of the genus, process of cucullus (pollex) and the form of membrane connecting with basal process of valva. However, we could not recognize the latter character as autapomorphy.

Several species of the genus have non-deciduous cornuti on vesica. Such cornuti are found only in the genus *Notocelia* Hübner, [1825] throughout the tribe Eucosmini (Nasu, 1980, 1992), but there is no evidence that those resemblance are due to synapomorphy.

This genus is probably closely related to *Epinotia* Hübner, [1825] on account of the similarities of genitalia, but no synapomorphies of both genera are found.

### Checklist of the species of *Gibberifera*

#### *Gibberifera* Obraztsov

1. *simplana* (Fischer von Röslerstamm) (Europe, North China, Far East of Russia and Japan)
2. *glaciata* (Meyrick), rev. stat. (Pakistan, India, Nepal, Thailand, Taiwan and West China)
3. *angkhagensis* n. sp. (Thailand)
4. *monticola* Kuznetzov (South China)
5. *nigrovena* n. sp. (Nepal)
6. *obscura* Diakonoff (Pakistan and Nepal)
7. *hepaticana* n. sp. (West China and Japan)
8. *mienshana* Kuznetzov (Central China and Far East of Russia)
9. *alba* n. sp. (Nepal)
10. *similis* Kuznetzov (Central China)

### Key to the species of *Gibberifera* based on male genitalia\*

1. Cucullus oblong (Figs 9-13).....2
- Cucullus oval (Figs 14, 15) .....7

\* The male of *similis* is unknown.

2. Uncus bifurcated apically (Figs 9-11, 13) .....3
- Uncus not bifurcated (Fig. 12) .....6
3. Cucullus with a prominence on the inner edge (Fig. 13).....*obscura* Diakonoff
- Cucullus without such a prominence (Figs 9-11) .....4
4. Vesica with non-deciduous cornuti (Figs 10, 11) .....5
- Vesica without such cornuti (Fig. 9) .....*simplana* (Fischer von Röslerstamm)
5. Vesica with two non-deciduous cornuti; basal opening with a setose lobe on the posterior edge (Fig. 11) .....*angkhangensis* n. sp.
- Vesica with a non-deciduous cornutus; basal opening without such a lobe (Fig. 10) .....*glaciata* (Meyrick)
6. Vesica with two non-deciduous cornuti.....*monticola* Kuznetsov
- Vesica without such cornuti (Fig. 12) .....*nigrovena* n. sp.
7. Uncus stick-shaped, vesica with some non-deciduous cornuti (Fig. 14).....8
- Uncus absent, vesica without such cornuti (Fig. 15) .....*alba* n. sp.
8. Vesica with two or three non-deciduous cornuti (Fig. 14).....*hepaticana* n. sp.
- Vesica with seven non-deciduous cornuti .....*mienshana* Kuznetsov

# 1. *Gibberifera simplana* (Fischer von Röslerstamm) (Figs 1, 2, 9, 16)

*Penthina simplana* Fischer von Röslerstamm, 1836 : 38, pl. 22, fig. 2 (adult).

*Grapholitha (Steganoptycha) simplana* : Heinemann, 1863 : 209.

*Steganoptycha simplana* : Wocke, 1871 : 260 ; Rebel, 1901 : 110.

*Enarmonia simplana* : Meyrick, 1895 : 473.

*Epinotia (Enarmonia) simplana* : Kennel, 1910 : 275, pl. 85, fig. 61 (adult).

*Epinotia simplana* : Issiki, 1932 : 1461, fig. 2891 (adult) ; Issiki, 1950 : 482, fig. 1309 (adult) ; Inoue, 1954 : 100.

*Semasia simplana* : Kennel, 1916 : 489, pl. 19, fig. 32 (adult).

Genus 2 *simplana* (Ephippiphoridii) : Pierce & Metcalfe, 1922 : 76, pl. 26 (♂ ♀ genitalia).

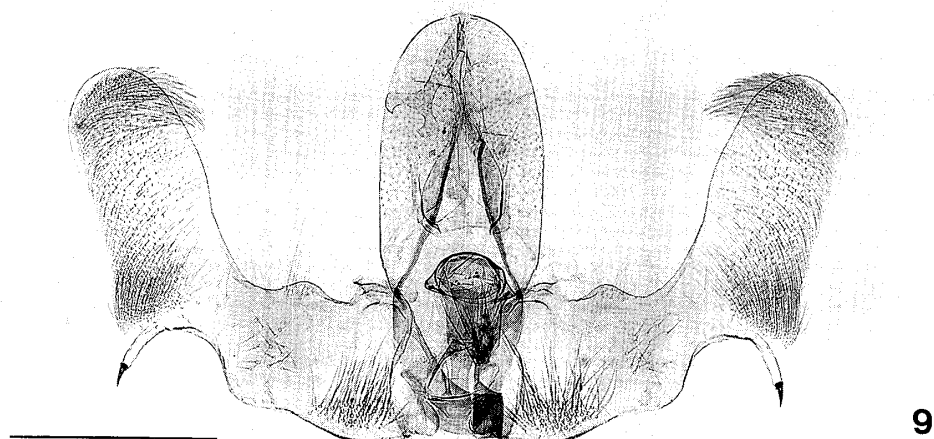
*Cydia simplana* : Issiki, 1922 : 289.

*Eucosma simplana* : Meyrick, 1928 : 546.

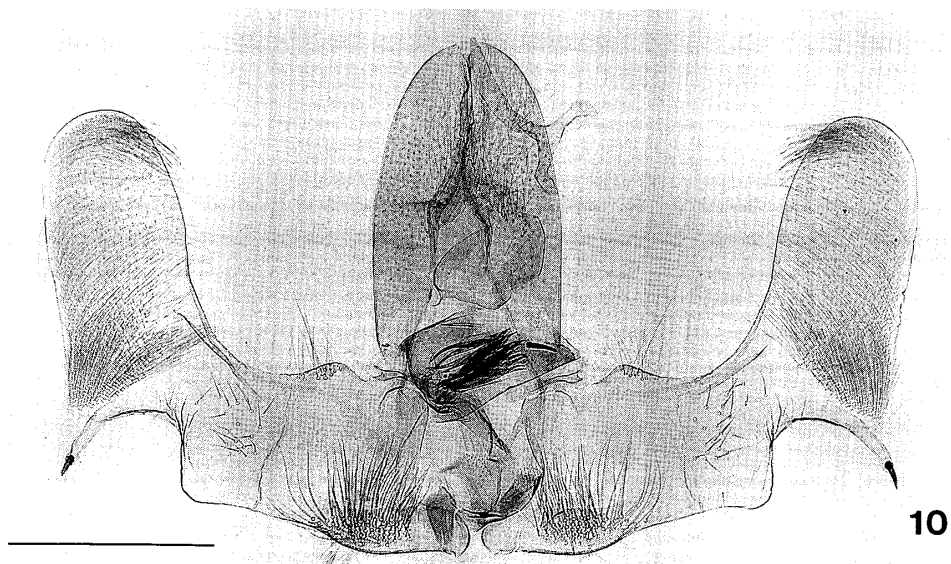
*Gibberifera simplana* : Obratzov, 1946 : 26 ; Issiki, 1957 : 64, pl. 10, fig. 299 (adult) ; Swatschek, 1958 : 155 (larva) ; Okano, 1959 : 261, pl. 175, fig. 2 (adult) ; Bradley, 1959 : 72, pl. 10, fig. 109 (adult) ; Hannemann, 1961 : 149, fig. 302 (head, wing venation, ♂ genitalia) ; Diakonoff, 1964 : 49, pl. 24, fig. 5 (adult), pl. 26, fig. 15 (♂ genitalia) ; Bentinck & Diakonoff, 1968 : 124, pl. 18, fig. 8 (adult), pl. 72, figs 176a-c (♂ ♀ genitalia) ; Kuznetsov, 1971 : 431, fig. 4b (♂ genitalia) ; Bradley, 1972 : 29 ; Kuznetsov, 1976 : 83 ; Kuznetsov, 1978 : 478, fig. 413-3 (adult), fig. 405-2 (wing venation), fig. 414-2 (♂ genitalia) ; Bradley *et al.*, 1979 : 9, 155, pl. 34, figs 13, 14 (adult) ; Leraut, 1980 : 95 ; Liu *et al.*, 1981 : 46, pl. 10, fig. 255 ; Kawabe, 1982, 1 : 122, 2 : 174, pl. 26, fig. 23 (adult) (part.) ; Palm, 1985 : 73 ; Razowski, 1987 : 143, pl. 5, fig. 5 (adult), figs 106, 107 (♂ genitalia), figs 247-249 (♀ genitalia), *Gibbifera* [missp.] ; Razowski, 1989 : 168, figs 176, 177 (♂ genitalia), figs 475, 476 (♀ genitalia), *Gibbifera* [missp.] ; Sugi, 1989 : 902.

*Cochylis ambiguana* Duponchel, 1836 : 505, pl. 262, fig. 7 (adult).

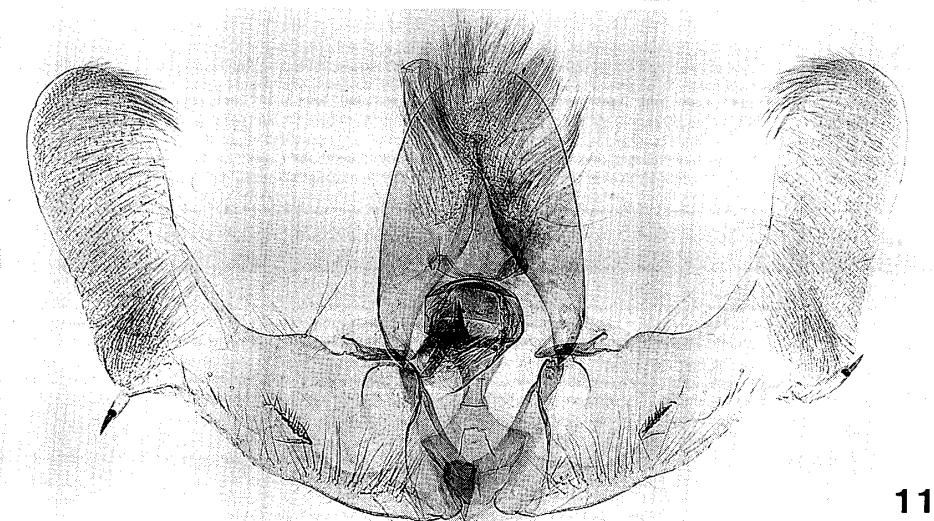
Material examined. ENGLAND : Sussex, 1 ♂, 1. X. 1885, genitalia slide 27567, 1 ♀ [no data], No. 27568, BMNH ; Abbots Wood, 1 ♂ [no data], genitalia slide 7349, BMNH, 1 ♀ [no data], genitalia slide 7222, BMNH ; 1 ♂ 1 ♀ [no data], Walsingham Collection 1910-427, YN. RUSSIA : Primorskii krai : Ussury Reservation (140-150 m), 1 ♂, 12-21. VII. 1990 (Moriuti leg.), genitalia slide YN-627, UOP. JAPAN : Niigata Pref : Sado Is., 1 ♀, 3. VIII. 1980 (Kawabe leg.), AK. Yamanashi Pref : Kiyosato (1,300 m), 1 ♂, 11-13. VIII. 1958 (Kawabe leg.), AK ; Momonoki-onsen, 1 ♂, 15. VI. 1979 (Kawabe leg.), AK. Tokyo Pref : Nippara, 1 ♀, 3. VI. 1962 (Kawabe leg.), AK ; Tama Hill, 1 ♂, 22. IV. 1958 (Kawabe leg.), AK. Nagano Pref : Onioshidashi, 1 ♂, 23. VIII. 1970 (Kawabe leg.), AK ; Tobira-onsen,



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10



11

Figs 9-11. Male genitalia. 9. *Gibberifera simplana* (Fischer von Röslerstamm), genitalia slide YN-627, Russia. 10. *G. glaciata* (Meyrick), genitalia slide YN-668, Nepal. 11. *G. angkhangensis* n. sp., Thailand, holotype (scales=0.5 mm).

1 ♀, 24-25. VIII. 1971 (Komai leg.), FK. Gifu Pref: Hikagedaira, 1 ♂, 16. VII. 1978 (Nasu leg.), YN, 1 ♂, 6-8. VIII. 1981 (Sato leg.), UOP, 1 ♂, 27-28. VIII. 1981 (Nasu leg.), YN. Nara Pref: Mt. Obako-dake, 1 ♀, 22. VII. 1970 (Mihara leg.), UOP; Mt. Wasamata-yama, 1 ♀, 5. VIII. 1990 (Nasu leg.), YN; Mt. Kojin-dake, 1 ♀, 14. VI. 1970 (Komai leg.), FK, 1 ♀, 13. VI. 1978 (Nasu leg.), YN. Tokushima Pref: Mt. Tsurugi-san, 1 ♂, 23. VI. 1973 (Toshima leg.), AK.

Distribution. Europe, Russia (European part, Amur and Primorskii krai), North China and Japan.

Host-plant. Salicaceae: *Populus tremula* L. (Kennel, 1910; Swatschek, 1958; Bradley *et al.*, 1979); *Salix* sp. (Kuznetzov, 1976).

Remarks. This species resembles *hepaticana* n. sp., and the distinguishing characters are noted in the remarks for *hepaticana* n. sp. For the morphology and the biology of larva see Swatschek (1958) and Bradley *et al.* (1979).

## 2. *Gibberifera glaciata* (Meyrick), **rev. stat.** (Figs 3, 10, 17)

*Cydia glaciata* Meyrick, 1907: 143.

*Eucosma glaciata*: Clarke, 1958: 364, pl. 181, fig. 4 (adult, ♂ genitalia).

*Gibberifera simplana glaciata*: Diakonoff, 1964: 49, pl. 24, fig. 4 (adult), pl. 26, figs 13, 14 (♀ genitalia).

*Gibberifera simplana*: Kawabe & Sakurai, 1988: 110, fig. 29 (adult); Kawabe, 1989: 54, fig. 82 (adult); Kawabe & Komai, 1992: 107. [Misid.].

Material examined. Lectotype. INDIA: Assam: Khasi Hills, ♂, VI. 1906, genitalia slide 6962, BMNH. Paralectotype. ♀, same data as lectotype, genitalia slide 7221, BMNH. Other materials. PAKISTAN: Murree, 1 ♂, 26. IX. 1958, genitalia slide 5808, BMNH. NEPAL: Kathmandu: Kirtipur (1,300 m), 1 ♂, 27. X. 1986 (Sakurai leg.), genitalia slide YN-668, AK; Kakani (2,070 m), 1 ♂, 1-2. VI. 1983 (Allen, Brendell, Robinson & Tuck leg.), genitalia slide 27566, BMNH, 1 ♂ 1 ♀, 1-2. VI. 1983 (Allen, Brendell, Robinson & Tuck leg.), YN, 1 ♀, 8. VIII. 1984 (Allen leg.), YN; British Embassy (1,350 m), 1 ♂, 20. V.-23. VI. 1983 (Allen, Brendell, Robinson & Tuck leg.), BMNH; Godavari (1,550-1,700 m), 2 ♂, 10. V. 1983 (Allen leg.), BMNH, 1 ♀, 10. V. 1983 (Allen leg.), YN. INDIA: Punjab: Simla (2,100 m), 2 ♂, IX. 1897 (Pilcher leg.), YN, 1 ♂, VIII. 1897 (Pilcher leg.), YN, 1 ♂, V. 1898 (Pilcher leg.), YN, 1 ♂, VIII. 1898 (Pilcher leg.), BMNH; Srinagar, 1 ♂, VIII. 1987 (CIE), *ex* Willow, BMNH. THAILAND: Chiang Mai: Hui Nam Dung (ca. 1,600 m), 1 ♀, 26 V. 1983 (Kuroko, Moriuti, Arita & Yoshiyasu leg.), genitalia slide YN-667, UOP; Doi Inthanon (1,200-1,300 m), 1 ♀, 21-24. X. 1984 (Karsholt, Lonholdt & Nielsen leg.), ZMUC, 1 ♀, 21-24. X. 1984 (Karsholt, Lonholdt & Nielsen leg.), genitalia slide YN-666, ZMUC, 1 ♀, 5-9. IV. 1988 (Harman leg.), genitalia slide 27564, BMNH. CHINA: Sichuan Prov: Wolong Nat. Prot. Dist. (1,900 m), 1 ♂, 14. VIII. 1980 (Liu leg.), genitalia slide YN-655, IZAS, 1 ♂, 14. VIII. 1980 (Liu leg.), YN. TAIWAN: Hualien Hsien: Tayuling, 1 ♂ 2 ♀, 28. VII. 1985 (Kishida leg.), AK, 1 ♂, 9-18. VI. 1980 (Davis leg.), genitalia slide YN-664, USNM; Kuanyuan (2,400 m), 1 ♀, 7-8. VIII. 1987 (Kawabe leg.), AK; Wehshan Spa (580 m), 1 ♀, 4-5. VIII. 1983 (Kawabe leg.), AK.

Distribution. Pakistan, India, Nepal, Thailand, Taiwan and West China. New to the regions except India.

Host-plant. Salicaceae: Willow [*Salix* sp.] (new record).

Remarks. Diakonoff (1964) treated *glaciata* as a subspecies of *simplana* because of the similarities of genitalia and wing maculations. However, this species differs from *simplana* in having dark brown vertex, straight inner edge of median fascia, uncus bifurcated widely, and a non-deciduous cornutus. We conclude that it is treated as a separated species from *simplana*.

The specimens from Taiwan are larger than those of the other regions (the former wing expanse 16–19 mm, the latter 12–16 mm), but there are no differences in the genitalic structures.

### 3. *Gibberifera angkhangensis* Kawabe & Nasu, n. sp. (Figs 4, 11)

♂. Wing expanse 10 mm. Vertex blackish brown. Face cream-white. Antenna blackish brown. Labial palpus blackish brown; terminal segment and apical 1/4 of median segment cream-white. Thorax blackish brown, with wide cream-white band medially; tegula blackish brown, cream-white in the posterior 2/3. Forewing ground color blackish brown, cream-white in basal 1/10. Costa with six pairs of costal strigulae from apex to basal 1/5. Plumbeous streaks originating from the first four pairs of costal strigulae; the first three streaks confluent below apex, running to tornus along termen, the fourth sinuous, reaching tornus. Basal patch indicated by gray sinuous streaks and dots, occupying basal 1/5. Median fascia cream-white, originating from the fifth and sixth pairs of costal strigulae, running outwardly to the middle of wing, thence turned inwardly, reaching the basal 2/5 of dorsum; the outer edge plumbeous. Ocelloid patch cream-white, scattered with plumbeous scales. Between median fascia and ocelloid patch resting small blackish brown spots of ground color. Cilia brownish gray, with a dark basal line. Hindwing light grayish brown; cilia grayish, with a dark basal line.

Male genitalia (Fig. 11). Uncus shallowly bifurcated in the apex. Neck of valva wide. Basal opening with a setose lobe on the posterior edge. Cucullus oblong. Vesica with nine cornuti and two non-deciduous ones.

♀. Unknown.

Material examined. Holotype. THAILAND: Chiang Mai: Doi Angkhang (ca. 1,450 m), ♂, 16. V. 1983 (Kuroko, Moriuti, Arita & Yoshiyasu leg.), genitalia slide YN-620, UOP.

Host-plant. Unknown.

Distribution. Thailand.

Etymology. The specific name is derived from the type locality, Doi Angkhang.

Remarks. The species is superficially similar to *glaciata*, but differs from it in having blackish brown vertex, two non-deciduous cornuti, a setose lobe on the posterior edge of basal opening of valva and small oval sterigma.

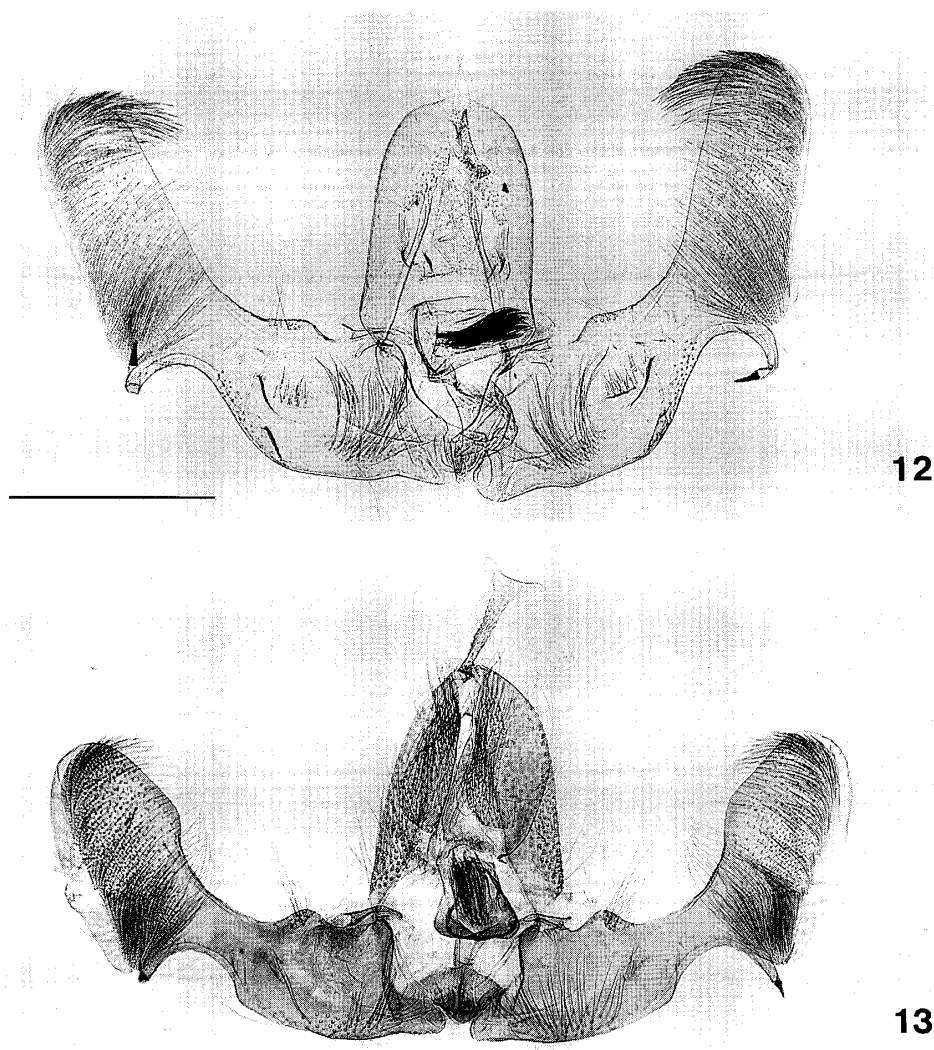
### 4. *Gibberifera monticola* Kuznetsov

*Gibberifera monticola* Kuznetsov, 1971: 428, fig. 3 (♂ genitalia).

Distribution. South China.

Host-plant. Unknown.



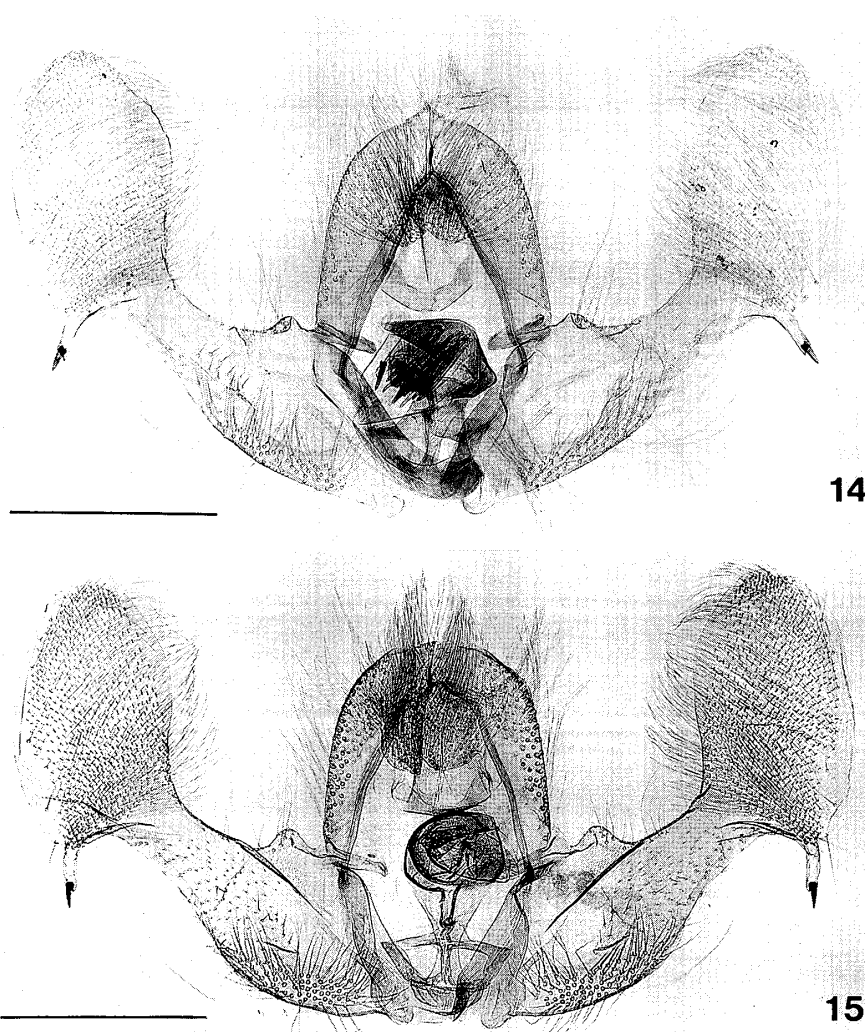


Figs 12, 13. Male genitalia. 12. *Gibberifera nigrovena* n. sp., Nepal, holotype. 13. *G. obscura* Diakonoff, genitalia slide BMNH-10849, Pakistan (scales=0.5 mm).

Remarks. This species is represented by one male, which has valva similar to *simplana*. It differs from *simplana* in having the uncus unbifurcated and two non-deciduous cornuti.

5. *Gibberifera nigrovena* Kawabe & Nasu, n. sp. (Figs 5, 12)

♂. Wing expanse 13 mm. Vertex grayish brown. Face cream-white. Antenna grayish brown. Labial palpus grayish brown, terminal segment and apical half of second segment cream-white. Thorax dark brown, posterior half cream-white with two dark brown dots; tegula cream-white, dark brown distally. Forewing ground color grayish dark brown; ventral surface blackish brown. Costa with six pairs of costal strigulae from apex to basal 1/6. Plumbeous streaks originating from the first four pairs of costal strigulae; the first two confluent, running to tornus along termen; the third and fourth sinuously running to the dark brown patch before tornus. Basal patch indicated by several sinuous plumbeous streaks, occupying basal 1/5. Median fascia cream-white, originating from the fifth and sixth pairs of costal strigulae, the inner edge straight, reaching basal 1/3 of dorsum, the outer edge plumbeous. Ocelloid patch cream-white, overlaid with brown. Cilia dark



Figs 14, 15. Male genitalia. 14. *Gibberifera hepaticana* n. sp., Japan, holotype. 15. *G. alba* n. sp., Nepal, holotype (scales=0.5 mm).

brown, with a dark basal line. Hindwing grayish brown, semitransparent, veins blackish, conspicuous; cilia light grayish brown, with a dark basal line.

Male genitalia (Fig. 12). Uncus stick-shaped, unbifurcated apically. Neck of valva shallow. Cucullus oblong. Vesica with 17 cornuti, without non-deciduous ones.

♀. Unknown.

Material examined. Holotype. NEPAL: Chitwan (350 m), ♂, 2-3. I. 1983 (Allen leg.), genitalia slide 27569, BMNH.

Distribution. Nepal.

Host-plant. Unknown.

Etymology. The specific name is derived from the Latin *niger* (black) plus *vena* (vein), in reference to the black veins of hindwing.

Remarks. This species is easily distinguished from the other species of the genus by the semitransparent hindwing with black veins. The male genitalia resemble those of

*monticola*, but differ from them in lacking non-deciduous cornutus.

# 6. *Gibberifera obscura* Diakonoff (Figs 6, 13)

*Gibberifera obscura* Diakonoff, 1964: 48, pl. 24, fig. 6 (adult), pl. 26, fig. 16 (♂ genitalia).

Material examined. PAKISTAN: Kuldana, 1 ♂ (CIE), *ex* buds of *Salix* sp., genitalia slide 10849, BMNH.

Distribution. Pakistan and Nepal. New to Pakistan.

Host-plant. Salicaceae: *Salix* sp. (new record).

Remarks. This species was described based on two males, which have obscure markings of forewings. The specimen examined here has a conspicuous large whitish pandurate marking of forewing (Fig. 6). It is easily distinguished from the other species of the genus by the characteristic cucullus that has a prominence on the inner edge.

# 7. *Gibberifera hepaticana* Kawabe & Nasu, n. sp. (Figs 7, 14, 18)

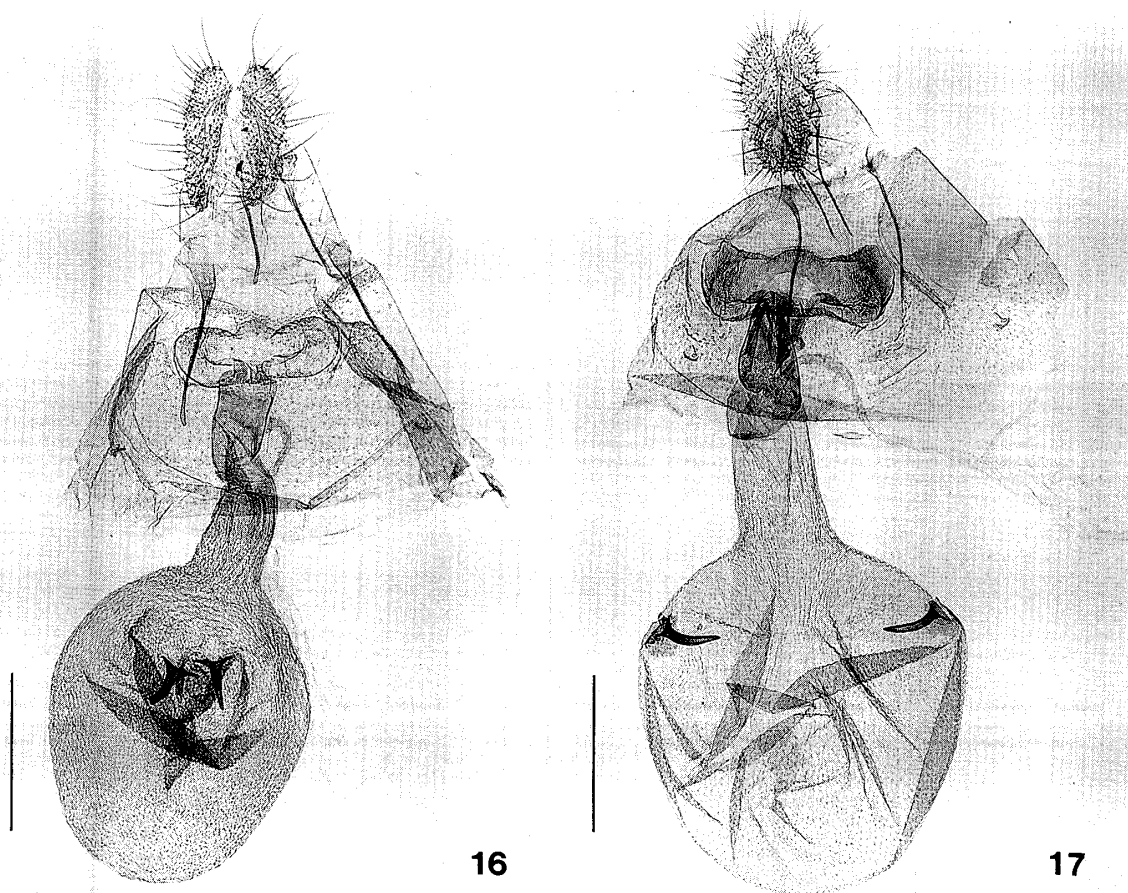
*Gibberifera simplana*: Kawabe, 1982, 1: 122, 2: 174, pl. 26, fig. 24 (adult) (part.). [Misid.].

♂ ♀. Wing expanse 13–15 mm. Vertex grayish dark brown. Face cream-white. Antenna grayish dark brown. Labial palpus brownish gray; terminal segment and apical 1/4 of median segment cream-white. Thorax grayish dark brown scattered with cream-white; tegula grayish dark brown, whitish medially. Forewing ground color dark brown, in apical half creamy. Costa with seven pairs of costal strigulae from apex to basal 1/4. Plumbeous streaks originating from the first five pairs of costal strigulae; the first three streaks confluent below apex, reaching to tornus along termen; the fourth and fifth streaks approaching the inner plumbeous edge of ocelloid patch. Basal patch indicated by two irregular gray streaks, occupying basal 1/5. Median fascia cream-white, originating from the sixth and seventh pairs of costal strigulae, the inner edge running outwardly to the middle of wing, thence inwardly turned, reaching the basal 1/3 of dorsum, the outer edge plumbeous, sinuous. Ocelloid patch brownish cream-white. Between median fascia and ocelloid patch resting a conspicuous dark brown spot of ground color. Cilia brownish gray, with a dark basal line. Hindwing light grayish brown; cilia grayish, with a dark basal line.

Male genitalia (Fig. 14). Uncus shallowly bifurcated in the apex. Neck of valva narrow. Cucullus oval. Vesica with 15–19 deciduous cornuti and two or three non-deciduous ones.

Female genitalia (Fig. 18). Apophysis posterioris as long as apophysis anterioris. Sterigma small, with acute latero-caudal angles. Signa small, equal in size.

Material examined. Holotype. JAPAN: Iwate Pref: Kuzakai, ♂, 14–15. VII. 1990 (Nasu leg.), genitalia slide YN-605, UOP. Paratypes. CHINA: Sichuan Prov: Wolong Nat. Prot. Dist. (1,900 m), 1 ♀, 14. VIII. 1980 (Liu leg.), genitalia slide YN-656, IZAS, 1 ♀, 14. VIII. 1980 (Liu leg.), YN. JAPAN: Hokkaido: Mt. Apoi-dake, 3 ♂, 27–30. VII. 1974 (Komai leg.), FK. Iwate Pref: Kuzakai, 12 ♂ 1 ♀, 14–15. VII. 1990 (Nasu leg.), YN; Hiratsuto, 5 ♂, 16. VII. 1990 (Nasu leg.), YN. Yamanashi Pref: Kiyosato, 1 ♀, 27. VII. 1971 (Kawabe leg.), AK, 1 ♀, 1. VIII. 1988 (Kawabe leg.), AK. Nagano Pref: Tobiraonsen, 2 ♂ 1 ♀ (genitalia slide YN-604), 26–27. VII. 1970 (Komai leg.), FK, 1 ♀, 28. VII. 1978



Figs 16, 17. Female genitalia. 16. *Gibberifera simplana* (Fischer von Röslerstamm), genitalia slide BMNH-27568, England. 17. *G. glaciata* (Meyrick), genitalia slide YN-667, Thailand (scales=0.5 mm).

(Kawabe leg.), AK, 1 ♀, 18. VIII. 1990 (Nasu leg.), YN. Gifu Pref: Takayama, 1 ♀, 23. VII. 1954 (Yasuda leg.), UOP; Hikagedaira, 1 ♂, 16. VII. 1978 (Nasu leg.), YN. Ishikawa Pref: Chugu-onsen, 1 ♂, 3. VII. 1976 (Tomisawa leg.), AK. Nara Pref: Mt. Hokozaidake, 2 ♂, 26. VII. 1976 (Moriuti leg.), UOP; Mt. Wasamata-yama, 3 ♀, 28-29. VII. 1986 (Moriuti leg.), UOP, 1 ♀, 23. VII. 1991 (Yasuda & Bae leg.), UOP.

Distribution. West China and Japan.

Host-plant. Unknown.

Etymology. The specific name is based on the Latin *hepaticanus* (brownish), in reference to the ground color of forewing.

Remarks. Kawabe (1982) figured the female specimen of this species as *simplana*. This species is superficially similar to *simplana*, but differs from it in having grayish dark brown vertex, brownish ocelloid patch, straight inner edge of median fascia, uncus bifurcated shallowly, two or three non-deciduous cornuti, and small sterigma with acute latero-caudal angles. The male genitalia are very similar to those of *mienshana*, and the distinguishing characters are noted in the remarks for *mienshana*.

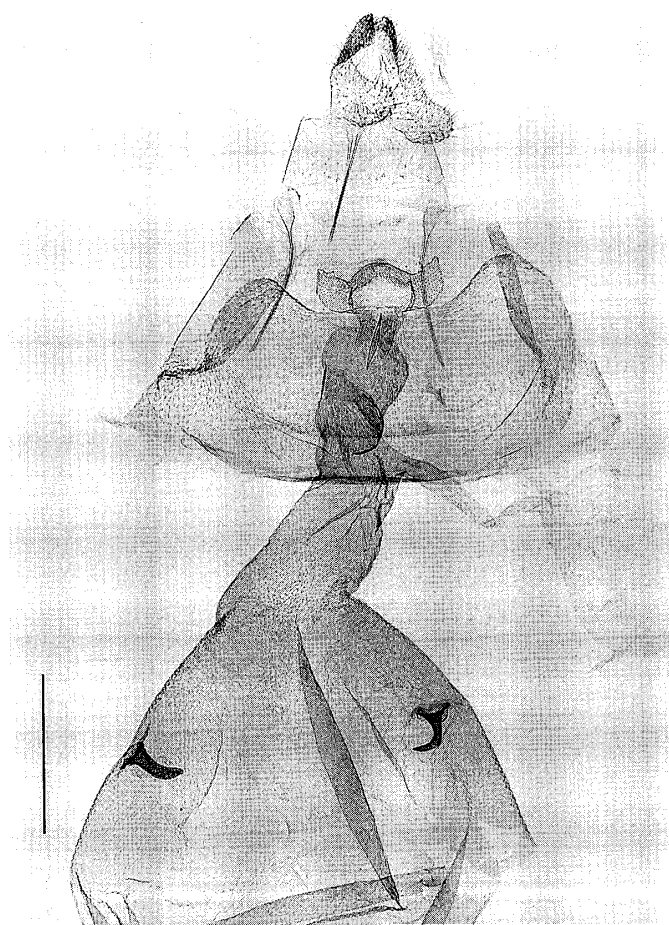


Fig. 18. Female genitalia of *Gibberifera hepaticana* n. sp., genitalia slide YN-604, Japan, paratype (scale=0.5 mm).

#### 8. *Gibberifera mienshana* Kuznetzov

*Gibberifera mienshana* Kuznetzov, 1971 : 430, fig. 4a (♂ genitalia) ; Kuznetzov, 1976 : 83.

Distribution. Central China and Russia (Primorskii krai).

Host-plant. Unknown.

Remarks. The male genitalia are similar to those of *hepaticana* n. sp., but this species differs from *hepaticana* n. sp. in having seven non-deciduous cornuti.

#### 9. *Gibberifera alba* Kawabe & Nasu, n. sp. (Figs 8, 15)

♂. Wing expanse 16 mm. Vertex and face cream-white. Antenna dark brown. Labial palpus cream-white, second segment brownish. Thorax cream-white; tegula cream-white, dark brown in anterior 1/3. Forewing ground color dark brown. Costa with six pairs of costal strigulae from apex to 4/5. Basal patch indicated by two or three plumbeous sinuous streaks, occupying basal 1/5. Median fascia cream-white, originating from the fifth and sixth pairs of costal strigulae, the inner edge straight, reaching basal 1/3 of dorsum, the outer edge running outwardly to the middle of wing, thence turned inwardly, to the middle of dorsum. Ocelloid patch cream-white. Cilia grayish dark brown, whitish

on the tornus. Hindwing brownish cream-white; cilia concolorous with wing, with a dark basal line.

Male genitalia (Fig. 15). Uncus absent. Neck of valva narrow. Cucullus oval. Vesica with 15 deciduous cornuti, without non-deciduous ones.

♀. Unknown.

Material examined. Holotype. NEPAL: Nauling Lekh (ca. 3,000 m), ♂, 10. VII. 1984 (Allen leg.), genitalia slide 27570, BMNH.

Distribution. Nepal.

Host-plant. Unknown.

Etymology. The specific name is derived from the Latin *albus* (white), in reference to the wing coloration.

Remarks. This species superficially resembles *glaciata*, but differs from it in lacking uncus and non-deciduous cornutus, and having oval cucullus. The male genitalia are similar to those of *hepaticana* n. sp. and *mienshana*, but it is able to be distinguished from them in lacking uncus and non-deciduous cornutus.

#### 10. *Gibberifera similis* Kuznetsov

*Gibberifera similis* Kuznetsov, 1971: 432, fig. 5 (♀ genitalia).

Distribution. Central China.

Host-plant. Unknown.

Remarks. This species is represented by one female, which has an oblong sterigma with longitudinal folds on both sides.

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## 摘 要

*Gibberifera* 属 (鱗翅目: ハマキガ科) の再検討と 4 新種の記載 (川辺 湛・那須義次)

*Gibberifera* 属は旧北区と東洋区に分布している属で、前翅の斑紋と色彩が非常に類似した種から構成される。今まで 5 種が記録されていたが、ヨーロッパとアジアの標本を再検討した結果、新たに 4 新種を含む 10 種が認められた。

本属は、1) 前翅に翅頂から翅の 4/5 を占める大きな白斑 (中帯と肛上紋からなる) を持つ、2) 雄交尾器の cucullus の腹方基部に有柄の太くて丈夫な刺毛を持つ、という 2 つの固有新形質を有する。本属は交尾器の類似により *Epinotia* 属に近縁であると考えられるが、両属の共有新形質は判明しなかった。

### 1. *Gibberifera simplana* (Fischer von Röslerstamm) ウスキシロヒメハマキ

本種は外部表徴では *hepaticana* に類似するが、区別点は *hepaticana* の項に記述した。

寄主植物: *Populus tremula* L. ヨーロッパヤマナラシ (ヤナギ科)。

分布: ヨーロッパ, ロシア (ヨーロッパ部, 極東部), 中国北部, 日本。

### 2. *Gibberifera glaciata* (Meyrick), rev. stat.

本種は Diakonoff (1964) により *simplana* の亜種として扱われた。しかし, *simplana* とは、1) 頭頂部が暗褐色である、2) 前翅の中帯の内縁がまっすぐである、3) uncus は幅広く 2 叉する、4) vesica に 1 本の非脱落性 cornutus を持つことにより区別され、独立種であると認められる。検討した台湾の標本は他の地域のものと比べて大型であるが、雌雄交尾器に違いは認められなかった。

寄主植物: *Salix* sp. (ヤナギ科) (新記録)。

分布: パキスタン, インド, ネパール, タイ, 台湾, 中国西部 (インドを除いた地域からは新記録)。



3. *Gibberifera angkhangensis* Kawabe & Nasu, n. sp.

本種は *glaciata* と外部表徴では類似するが, 1) 頭頂部が黒褐色である, 2) vesica に 2 本の非脱落性 cornuti を持つ, 3) valva の basal opening の後方端に有刺毛葉片を持つ, 4) sterigma は小さく卵形であることにより区別できる。

分布: タイ。

4. *Gibberifera monticola* Kuznetsov

本種は 1 雄によって示されている。交尾器は *simplana* のものに類似するが, 1) uncus は 2 叉しない, 2) vesica に 2 本の非脱落性 cornuti を持つことにより区別できる。

分布: 中国南部。

5. *Gibberifera nigrovena* Kawabe & Nasu, n. sp.

本種は半透明な後翅とその翅脈が黒化していることにより, 本属の他の種と容易に区別できる。本種の雄交尾器は *monticola* のものに類似するが, vesica に非脱落性 cornutus を持たないことにより区別できる。

分布: ネパール。

6. *Gibberifera obscura* Diakonoff

本種は前翅の斑紋が不明瞭な個体に基づいて記載されたが, 今回検討した標本は前翅の斑紋が明瞭であった。本種は cucullus の内縁に突起を持つことにより, 本属の他の種と区別できる。

寄主植物: *Salix* sp. (ヤナギ科) (新記録)。

分布: パキスタン (新記録), ネパール。

7. *Gibberifera hepaticana* Kawabe & Nasu, n. sp. ニセウスキシロヒメハマキ (新称)

本種は川辺 (1982) により *simplana* の個体変異として図示されていたものである。しかし, *simplana* とは, 1) 頭頂部が灰暗褐色である, 2) 前翅の中帯の内縁がまっすぐである, 3) uncus は浅く 2 叉する, 4) vesica に 2-3 本の非脱落性 cornuti を持つ, 5) sterigma は小さく, 側後方に尖った角を持つことにより区別できる。

分布: 中国西部, 日本。

8. *Gibberifera mienshana* Kuznetsov

本種の雄交尾器は *hepaticana* のものに類似するが, vesica に 7 本の非脱落性 cornuti を持つことにより区別できる。

分布: 中国中央部, ロシア極東部。

9. *Gibberifera alba* Kawabe & Nasu, n. sp.

本種は外部表徴では *glaciata* に類似するが, 1) vesica に非脱落性の cornuti を持たない, 2) 卵形の cucullus を持つことにより区別できる。また, 雄交尾器は *hepaticana* と *mienshana* のものに類似するが, vesica に非脱落性 cornutus を持たないことにより区別できる。

分布: ネパール。

10. *Gibberifera similis* Kuznetzov

本種は1雌によって示されている。本種は両側に折り目を持った長方形の sterigma を持つ。

分布：中国中央部。

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